New independent claim 32 includes a number of limitations that are not shown or suggested by the prior art of record. In particular, the claim recites a graphics system with a graphics memory, a graphics memory access bus, a plurality of graphics processing units, and a memory controller. Figure 3 illustrates such a system. The prior art of record is not directed toward graphics systems and therefore does not show or suggest the newly recited claim elements.

Claim 32 is further limited to a memory controller that provides "a non-partitioned view of said graphics memory to said plurality of graphics processing units." The prior art of record does not show or suggest such a memory controller. The significance of this limitation can be appreciated by referring to page 2, lines 11-13, of the specification, which state: "Thus, it is desirable to improve the fetching efficiency to the local memory storage but without altering the view to the memory clients of memory as a single unit to maintain compatibility with existing memory clients." Again, the prior art of record does not show or suggest a memory controller that provides "a non-partitioned view of said graphics memory to said plurality of graphics units" and also fails to provide the attendant benefits of such a memory controller.

Claim 32 is further limited to a memory controller that divides "said graphics memory access bus into individual bus partitions, each of which is a fraction of the graphics memory access bus size". This feature of the invention is discussed on page 5 of the specification. The prior art of record fails to show or suggest a memory controller that is configured to perform this division of the graphics memory access bus.

Claim 32 is further limited to a memory controller that partitions "information within said graphics memory into independently accessible memory partitions, said memory controller routing data from said independently accessible memory partitions to said plurality of graphics processing units via said individual bus partitions." The prior art of record fails to show or suggest a memory controller that divides a graphics memory into independently accessible memory partitions and then delivers data to graphics processing units via individual bus partitions. The significance of this feature can be appreciated with reference to page 3, lines 25-30, of the specification, which state: "Another advantage of the present invention is that, if a client requires only a small transfer, then only a few partitions, perhaps a single partition, of the total memory array is involved in the transfer. This leaves the other partitions of the memory array free to perform other small transfers, thus improving the deliverable throughput of the

array. Larger transfers are still possible by splitting the request into a number of smaller requests and submitting the multiple requests to the individual partitions for service." Figure 10 of the application illustrates the performance benefit of this feature; particularly in contrast to prior art systems, which have performance characteristics as shown in Figure 2.

Prior art graphics systems with multiple memory buses dedicated individual buses to individual graphics processing units. For example, a texture processing graphics processing unit utilized its assigned bus, while a color graphics processing unit utilized its assigned bus. In this scenario, if the texture processing graphics processing unit is idle, the bandwidth of the bus corresponding to the texture processing graphics processing unit is unused. In contrast, with the present invention, the memory controller provides "a non-partitioned view of said graphics memory, while dividing said graphics memory access bus into individual bus partitions." Thus, for example, a texture processing graphics processing unit and a color graphics processing unit can share memory space and bandwidth on individual bus partitions. The prior art of record does not show or suggest such a technique.

In view of the foregoing, it is respectfully submitted that new independent claim 32 defines subject matter that is not shown or suggested by the prior art of record. Therefore, independent claim 32 and its dependent claims 33-54 should be in a condition for allowance. Dependent claims 33-37 recite elements that appeared in the originally submitted claims. Dependent claims 38-39 find support on page 8, lines 10-15 of the specification and in Figure 6A. Claims 40-44 find support on page 11, lines 3-16 of the specification and in Figures 7-8. Claim 45 finds support on page 11, lines 17-31 of the specification and in Figure 9. Claims 46-47 find support on page 9, lines 15-21 of the specification. New claim 48 finds support on page 5, lines 25-30, page 6, lines 1-8, page 7, lines 22-28, and page 9, lines 10-15. Claims 49-54 include limitations of the type that appeared in the originally submitted claims. Thus, no new matter is entered.

New independent method claim 55 and its dependent claims include limitations of the type discussed in connection with claims 32-54. Therefore, independent claim 55 and its dependent claims 56-67 should also be in a condition for allowance.
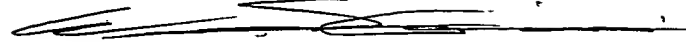
In sum, new claims 32-67 have been drafted to fully distinguish over the prior art of record. If the Examiner believes that any of the claims are not in a condition for allowance, he is encouraged to contact the undersigned to resolve any outstanding issues.

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Cooley Godward LLP
ATTN: Patent Group
Five Palo Alto Square
3000 El Camino Real
Palo Alto, CA 94306-2155
Tel: (650) 843-5000
Fax: (650) 857-0663

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Respectfully submitted,
COOLEY GODWARD LLP

By: _____

William S. Galliani
Reg. No. 33,885